

Administrator McCarthy signed EPA's Portland Harbor Record of Decision on January 3, 2017. On January 19, 2017, EPA announced the release of the *IRIS Toxicological Review of Benzo[a]pyrene (Final Report)* (https://cfpub.epa.gov/ncea/iris2/chemicalLanding.cfm?substance_nmbr=136). The updated benzo[a]pyrene (BaP) toxicity values provided in the final IRIS report would significantly change the remediation goals established just two weeks earlier in the Portland Harbor ROD, eliminating more than \$100 million of unnecessary cleanup.

EPA's ROD sets two (but applies three) sediment cleanup levels for carcinogenic polycyclic aromatic hydrocarbons (cPAHs), calculated as BaP equivalents (BaP eq):

- (1) For nearshore areas of Portland Harbor, EPA's ROD identifies a cPAH (BaP eq) cleanup level of 12 µg/kg based upon human health direct contact with sediments. EPA's June 2016 Final Feasibility Study selected cPAH preliminary remediation goals of 12 µg/kg for direct contact with beach sediments and 106 µg/kg for sediments that are mostly or always under water. See FS Table 2.2-4. As part of the ROD, EPA provided an updated calculation of residual and post construction direct contact risk estimates that evaluates its selected remedy against the 106 µg/kg cPAH PRG for in-water sediments rather than the 12 µg/kg cPAH PRG for beach sediments. See, *Portland Harbor RI/FS Appendix J – Update, Calculation of Residual and Post Construction Risk Estimates*, Table J2.2-2c. This is consistent with EPA's baseline human health risk assessment (BHHRA) for in-water exposures, and so it appears that the 12 µg/kg cPAH cleanup level in ROD Table 17 is an error if applicable to in-water sediments (as opposed to beach sediments). (We note also that "highly toxic" principal threat waste concentrations are based on the 106 µg/kg in-water sediment direct contact PRG, rather than the beach PRG. See ROD, Table 6.) The appropriate cleanup level for human direct contact with nearshore sediment, based upon the assumptions and methods of the EPA BHHRA, should be 106 µg/kg.
- (2) In deep water areas of the site, principally the navigation channel, EPA selected a cPAH cleanup level of 3950 µg/kg based on human consumption of clams.

See ROD, Table 17.

If the cPAH RGs were recalculated using the updated IRIS cancer slope factor and all of the same assumptions, exposure scenarios and methodologies employed in EPA's FS, the RGs would change significantly:

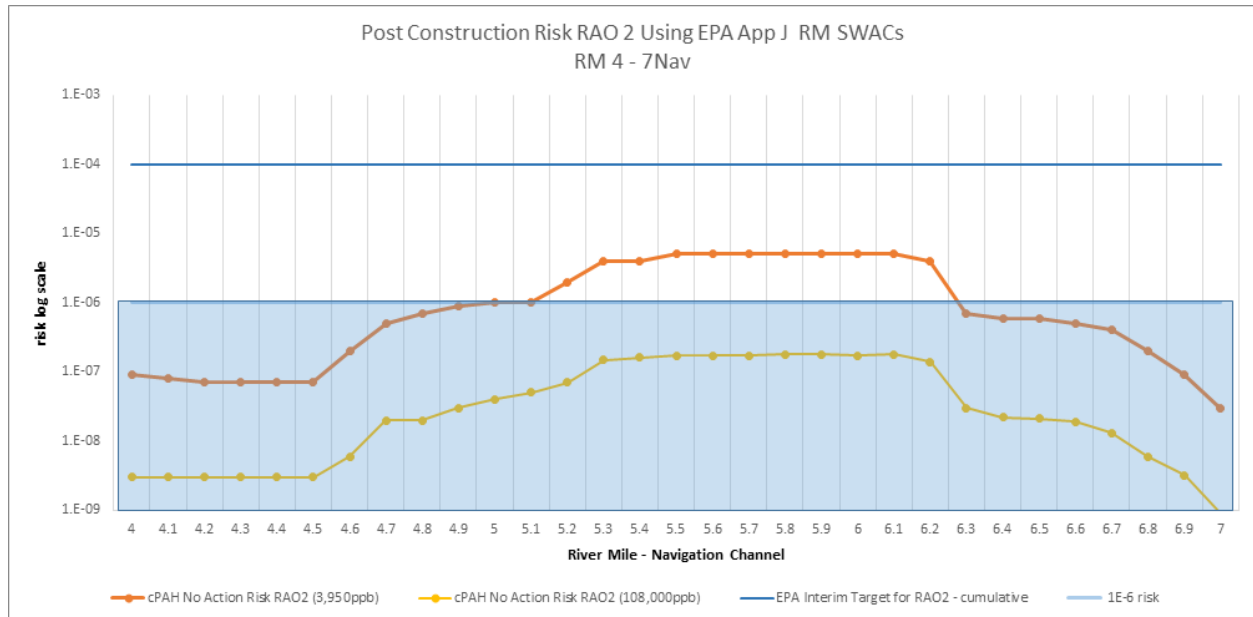
- The in-water sediment direct exposure cPAH RG would increase from 106 µg/kg to 773 µg/kg.
- The beach sediment direct exposure cPAH RG would increase from 12 µg/kg to 85 µg/kg.
- The clam consumption exposure cPAH RG would increase from 3,950 µg/kg to 108,000 µg/kg.

Further, the cPAH "highly toxic" principal threat waste threshold would increase from 106,000 µg/kg to 773,000 µg/kg.

The net result of these changes, based upon the methodologies in EPA's updated calculation of residual and post-construction risks, is that no areas of the site would exceed a 1×10^{-6} cPAH clam consumption risk, and all areas downstream of RM 6 (the approximate downstream edge of the Gasco site) would meet the 1×10^{-5} interim risk threshold for cPAH direct contact based on the no action alternative. In other words, based upon the existing data set, all areas of the site other than in the immediate vicinity

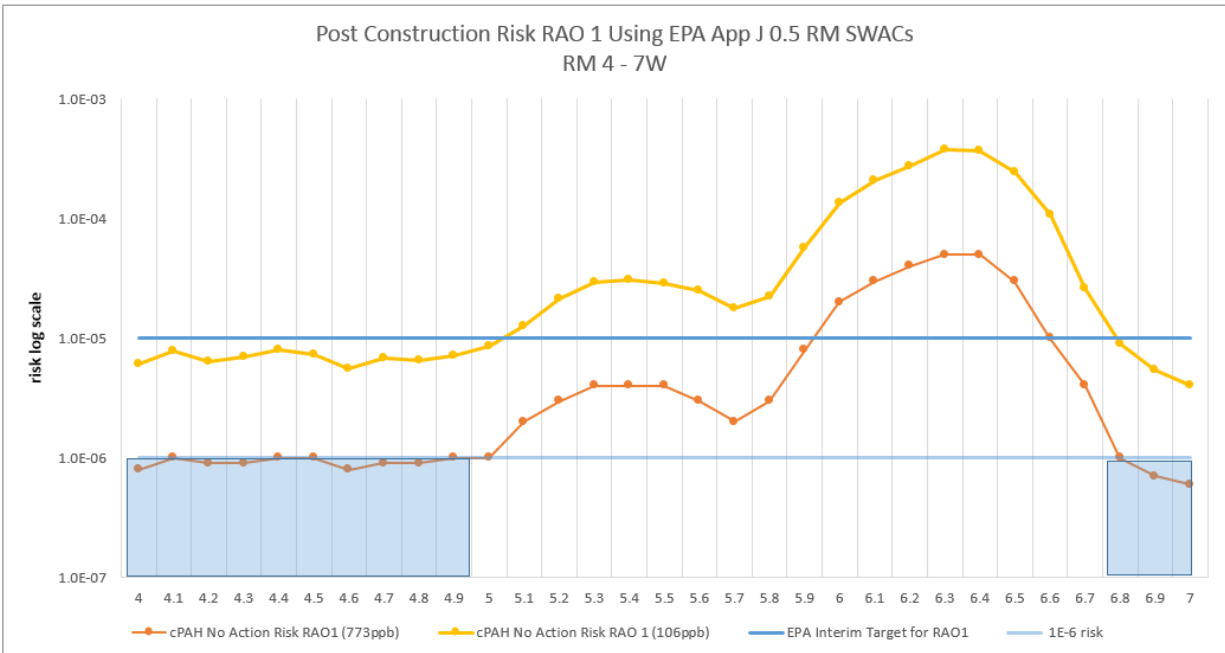
of Gasco do not present cPAH risks outside EPA's acceptable risk range based upon EPA's current BaP cancer slope factor.

Here is a simple graph showing "no action" cPAH clam consumption risks in the navigation channel using EPA's SWACs and methodologies:



The orange line depicts risks calculated by EPA relative to the RG set by EPA's January 6 ROD; the yellow line shows risk using updated RGs with the BaP cancer slope factor published on January 19. We have previously noted our concerns about application of a cleanup level based upon clam consumption in deep waters, including the fact that no such risk was identified in the BHHRA. Even if this were a valid risk scenario, however, no risk would exist based upon EPA's current toxicity values.

This graph shows similar risk comparisons for direct contact with in-water sediment:



Again, based upon the updated cancer slope factor, potential unacceptable risk for BaP in-water sediment direct contact downstream of the immediate vicinity of the Gasco is either below EPA's interim risk threshold or non-existent. No cleanup in these areas is necessary, based upon EPA's best and most current science.

The cPAH cleanup levels in the ROD should be updated now, before significant pre-design or design work begins. Updating the values requires only a straightforward mathematical calculation and does not involve review or revision of any of EPA's assumptions or methodologies in the BHHRA. An Explanation of Significant Difference that makes these corrections now could save millions of dollars of remedial design work and avoid tens, perhaps hundreds, of millions of dollars of unnecessary cleanup.